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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/857,585	05/16/97	ABE	F WATK:040E

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IM62/0407

EXAMINER

PREISCH, N

ART UNIT	PAPER NUMBER
1764	S3

DATE MAILED: 04/07/00

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 53

Application Number: 08/857,585

Filing Date: 05/16/97

Appellant(s): Abe et al.

Charles A. Wendel
For Appellant

MAILED
APR 6 2000
GROUP 1700

EXAMINER'S ANSWER

This is in response to appellants' brief on appeal filed 3-10-00.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

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(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

No amendment after final has been filed.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellants' statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellants' brief includes a statement that claims 3, 5, 6, 12 and 14 stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *ClaimsAppealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

D 2 - 056247
Hei 2-56247

3,591,488

5,223,236

KAWABATA ET AL. 2-1990

EBERLY, JR. ET AL. 7-1971

INOUE ET AL. 6-1993

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 3, 5, 6, 12 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the translation of Hei 2-56247 in view of Eberly, Jr. et al.(3,591,488).

In the pending application, appellants claim a composition comprising a high silica zeolite having a Si/Al ratio of not less than 40, and a heat resistant oxide, wherein the heat resistant oxide is loaded with a noble metal. Appellants further claim an adsorbent comprising a honeycomb structure coated with a heat resistant oxide loaded with a noble metal.

The translation of Hei 2-56247 teaches a composition for automobile exhaust gas treatment comprising a zeolite and a heat resistant oxide in the form of alumina. The Hei 2-56247 translation also discloses that a noble metal in the form of Pt is loaded on alumina. For example, see page 3, lines 7-13. The translation of Hei 2-56247 also discloses that the support is honeycomb shaped. In addition, the support is coated with a heat resistant oxide in the form of alumina. For example, see page 3, lines 6-7.

The translation succeeds in teaching appellants' claimed zeolite component and heat resistant oxide component, other than zeolite, loaded with a noble metal in the form of alumina

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loaded with Pt. Furthermore, Hei 2-56247 also succeeds in teaching appellants' honeycomb shaped support. In addition, the translation of Hei 2-56247 is considered to encompass appellants' alkali metal content of 0.1% by weight or less because "less" is considered to encompass 0%.

Several differences are noted between the applied art of the Hei 2-56247 translation and appellants' claimed invention. The Hei 2-56247 translation is silent about the Si/Al ratio in the zeolite. Furthermore, the Hei 2-56247 translation is silent about the specific structure of the honeycomb.

The reference of Eberly, Jr. et al.(3,591,488) is cited for the general teaching that it is known in the art that zeolites with that high silica/alumina ratios, such as 50, are desirable for high temperature conversions because they display increased thermal stability. For example, see column 2, lines 41-45 and column 5, lines 2-5.

Since it is desirable for compositions to be thermally stable for exhaust gas treatment process due to the high temperatures involved, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a zeolite with a high silica/alumina ratio in the exhaust gas composition disclosed by the translation of Hei 2-56247 because it is known in the art that zeolites with a high silica/alumina ratio display increased thermal stability.

Furthermore, appellants' limitations directed at the specific shape of the honeycomb composition are not considered to be patentable distinctions because such shapes are conventional in the art.

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Claims 3, 5, 6, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the translation of Hei 2-56247 in view of Inoue et al.(5,223,236).

In the pending application, appellants claim a composition comprising a high silica zeolite having a Si/Al ratio of not less than 40, and a heat resistant oxide, wherein the heat resistant oxide is loaded with a noble metal. Appellants further claim an adsorbent comprising a honeycomb structure coated with a heat resistant oxide loaded with a noble metal.

The translation of Hei 2-56247 teaches a composition for automobile exhaust gas treatment comprising a zeolite and a heat resistant oxide in the form of alumina. The abstract also discloses that a noble metal in the form of Pt is loaded on alumina. For example, see page 3, lines 7-13. The translation of Hei 2-56247 also discloses that the support is honeycomb shaped. In addition, the support is coated with a heat resistant oxide in the form of alumina. For example, see page 3, lines 6-7.

The translation of Hei 2-56247 succeeds in teaching appellants' claimed zeolite component and heat resistant oxide component, other than zeolite, loaded with a noble metal in the form of alumina loaded with Pt. Furthermore, translation of Hei 2-56247 also succeeds in teaching appellants' honeycomb shaped support.

Several differences are noted between the applied art of the Hei 2-56247 translation and appellants' claimed invention. The Hei 2-56247 translation is silent about the Si/Al ratio in the zeolite. Furthermore, the translation of Hei 2-56247 is silent about the specific structure of the honeycomb.

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The reference of Inoue et al.(5,223,236) teaches the use of a high silica zeolite with a silica/alumina ratio greater than 20 for exhaust gas conversion. See column 1, lines 53-56 and column 2, lines 7-10.

Since the translation of Hei 2-56247 does not limit the silica/alumina ratio of the zeolite, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select any silica/alumina ratio greater than 20 (e.g. a ratio of 40) because the reference of Inoue et al.(5,223,236) teaches that any silica/alumina ratio greater than 20 is desirable for exhaust gas treatment. Appellants have not shown anything unexpected with respect to the claimed silica/alumina ratio.

Furthermore, appellants' limitations directed at the specific shape of the honeycomb composition are not considered to be patentable distinctions because such shapes are conventional in the art.

(11) Response to Argument

Appellants argue 1) the reference of Hei 2-56247 lacks any awareness of the need to control the alkali metal content of the zeolite; 2) the Hei 2-56247 composition is structured such that the zeolite layer is required to be on the inside; 3) Hei 2-56247 does not disclose the influence of water on the zeolite's hydrocarbon adsorption capacity; 4) the secondary reference of Eberly, Jr. et al.(3,591,488) discloses a zeolite with the necessary silica/alumina ratio for use in petroleum processing (hydrocarbon conversions) and not exhaust gas conversion as disclosed in

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the primary reference of Hei 2-56247; 5) the reference of Eberly, Jr. et al.(3,591,488) does not describe the relationship between BET, Si/Al ratio and alkali metal content; 6) the reference of Inoue et al.(5,223,236) does not teach or suggest the need to control both the Si/Al ratio and the alkali metal content to give effective results for appellants' intended use; and 7) the Declaration by Ms. Naomi Noda reports BET values for a zeolite having a Si/Al ratio of 25, below the ratio defined in the claims.

In response to appellants' argument 1), the primary reference of Hei 2-56247 is not required to teach the "reason" for controlling the alkali metal content. The translation of Hei 2-56247 is considered to encompass appellants' alkali metal content of 0.1% by weight or less because "less" is considered to encompass 0%. As a result, appellants' arguments with respect to controlling the alkali metal content do not overcome the pending rejection.

Appellants' arguments 2) and 3) are not successful in overcoming the pending rejections because appellants are arguing limitations which are not in the claims. Since the claims do not contain limitations directed at the placement of the zeolite layer or the influence of water on the zeolite's hydrocarbon adsorption capacity, arguments directed at such do not succeed in establishing differences between the reference and the pending claims.

In response to appellants' argument 4), the secondary reference of Eberly, Jr. et al.(3,591,488) is considered to suggest the use of a Si/Al ratio of at least 40 in a catalyst or adsorbent used in a high temperature conversion such as exhaust gas conversion. Motivation for combining references results from the fact that the reference of Eberly, Jr. et al.(3,591,488)

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specifically discloses that "It has been found that for general catalytic or absorptive uses, the aluminosilicates having higher silica to alumina ratios will be preferred due to their higher stability....". For example, see column 2, lined 39-44. Since the composition of Hei 2-56247 is used for the "catalytic/absorptive" purpose of treating exhaust gas, one of ordinary skill would have been motivated to select a high silica zeolite such as that claimed by applicants. In addition, the reference of Eberly, Jr. et al. does not limit the processes the high silica zeolite is used in. Since the reference broadly discloses that the high silica zeolite is useful in various hydrocarbon conversion processes without limiting its function, it is also considered to be useful in exhaust gas conversion, which is considered to be a type of hydrocarbon conversion despite appellants' assertion. Appellants have not pointed to any teaching in the reference of Eberly, Jr. et al., that indicates that the high silica zeolite "can not" be used in an exhaust gas conversion.

In response to appellants' argument 5), the reference of Eberly, Jr. et al.(3,591,488) is not required to disclose the relationship between BET, Si/Al ratio and alkali metal content. BET is not defined in the claims. As a result, it is not mandatory that a reference teaches the significance of BET. In addition, the primary reference is considered to suggest 0% alkali metal which is in purview of appellants' less than 0.1%. Since the primary reference already suggests appellants' alkali metal content, it is not mandatory that the secondary reference of Eberly, Jr. et al.(3,591,488) teach the claimed alkali metal content. The secondary reference of Eberly, Jr. et al.(3,591,488) was relied on to teach the deficiency of the primary reference with respect to the Si/Al ratio. Since the reference provides motivation for selecting a Si/Al within appellants'

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claimed range, it is considered to properly remedy the deficiency of the primary reference with respect to a desired Si/Al ratio.

In response to appellants' argument 6), the reference of Inoue et al.(5,223,236) is not required to teach the control of both the Si/Al ratio and the alkali metal content to give effective results for appellants' intended use. The primary reference suggests an alkali metal content of 0% which is in purview of appellants' less than 0.1 %. As a result, it is not mandatory for the secondary reference of Inoue et al.(5,223,236) to address the alkali metal content because it is not a deficiency of the primary reference. The reference of Inoue et al.(5,223,236) was relied on to teach the deficiency of the primary reference with respect to the Si/Al ratio. Inoue et al.(5,223,236) is considered to be a proper reference to combine with Hei 2-56247 because it provides motivation for selecting a high Si/Al ratio in the exhaust gas catalysts of Hei 2-56247.

In response to appellants' argument 7), the Declaration by Ms. Naomi does not overcome the pending rejections with rejections because the rejections contain a motivation to select an Si/Al ratio greater than 40. Furthermore, appellants refer to a BET characteristic which is not contained in the claims. Since it is not contained in the claims, it is not considered to be critical to the composition.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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N.P.
April 6, 2000



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